**Probability rules worksheet- 2 ANSWERS**

1. If P(A) = 0.45 and P(B) = 0.60 and P(A∩B) = 0.22, find the following:
   1. P(A U B) = P(A) + P(B) – P(A∩B) = 0.45 + 0.60 – 0.22 = **0.83**
   2. P(B|A) = P(A∩B) = 0.22 = **0.489**

P(A) 0.45

* 1. Are A and B disjoint events? Why or why not?

***No. P(A∩B) ≠ 0***

1. If P(D) = 0.32, P(R) = 0.13 and D and R are disjoint, what is the probability of D or R?

P(D U R) = 0.32 + 0.13 = **0.45**

1. If P(A) = 0.51 and P(B) = 0.28 and P(B|A) = 0.18, find the following:
   1. P(A and B) = P(A∩B) = P(A) \* P(B|A) = (0.51)(0.18) = **0.0918**
   2. P(A or B) = P(A U B) = P(A) + P(B) – P(A∩B) = 0.51 + 0.28 – 0.0918 = **0.6982**
2. Let the sample space, S = {all whole number from 10 through 30}

Let the event A = {12, 14, 16, 18, 20, 22}

Let the event B = {10, 15, 20, 25, 30}

Let the event C = {12, 13, 14, 15, 17, 18, 19, 20, 25, 27}

Let the event D = {11, 21, 23, 24, 26, 28}

Find the following: ***Total sample space is 21 numbers***

1. A ∩ B = {20}
2. P(A ∩ B) = 1/21
3. Dc = {10, 12 – 20, 22 25, 27, 29, 30}
4. P(C ∩B) = 3/21 {15, 20, 25}
5. P(A U B) = 10/21
6. P(C ∩ D) = 0%
7. P (Cc) = 11/21
8. C U A = {12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 25, 27}